L11 ANSWER 1 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 2000:756609 CAPLUS
TI The use of **microfluidic** systems in the electrochemical detection of target analytes
IN Kayyem, Jon Faiz
PA Clinical Micro Sensors, Inc., USA
SO PCT Int. Appl., 119 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000062931	A1	20001026	WO 2000-US10903	20000421

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI US 1999-295691 19990421
AB Figure (1) depicts some preferred embodiments of the invention. Figure (1A) depicts a solid support (5) that has a sample inlet port (10), a first **microchannel** (15), a storage module (25) (for example, for assay reagents) with a second **microchannel** (20). The second **microchannel** (20B), may be in fluid contact directly with the detection module (30) comprising a detection electrode (35), or (20A), a **self-assembled monolayer** and a binding ligand.
Figure (1B) depicts a sample handling well (40) and a second storage well (25A) with a **microchannel** (20) to the sample handling well (40).
For example, the sample handling well (40) could be a cell lysis chamber and the storage well (25A) could contain lysis reagents. Figure (1C) depicts a sample handling well (40) that is a cell capture or enrichment chamber, with an additional reagent storage well (25B) for elution buffer.
Figure (1D) depicts the addition of a reaction module (45), with a storage
module (25C), for example for storage of amplification reagents. Optional
waste module (26) is connected to the reaction module (45) via a **microchannel** (27). All of these embodiments may addtionally comprise valves, waste wells, and pumps, including additional electrodes.

L11 ANSWER 7 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 2000:68641 CAPLUS
DN 132:119555
TI Microdevices for screening biomolecules
IN Wagner, Peter; Ault-Riche, Dana; Nock, Steffen; Itin, Christian
PA Zyomyx, Inc., USA
SO PCT Int. Appl., 78 pp.
CODEN: PIXXD2

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000004390	A2	20000127	WO 1999-US15969	19990714
	WO 2000004390	A3	20000504		
	W: AE, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9951024	A1	20000207	AU 1999-51024	19990714
PRAI	US 1998-115397	19980714			
	WO 1999-US15969	19990714			

AB Methods and devices for the parallel, in vitro screening of biomol. activity using miniaturized **microfabricated** devices are provided. The biomols. immobilized on the surface of the devices of the present invention include proteins, polypeptides, polynucleotides, polysaccharides, phospholipids, and related unnatural polymers of biol. relevance. These devices are useful in drug development, functional proteomics and clin. diagnostics and are preferably used for the parallel screening of families of related proteins.

L11 ANSWER 11 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 1998:724606 CAPLUS
DN 130:78214
TI **Microfabricated** components for integrated chemical analysis
AU Johnson, Brian N.; Handique, Kalyan; Sammarco, Timothy S.; Webster, James R.; Man, P. F.; Brahmasandra, Sundaresh N.; Burke, David T.; Mastrangelo, Carlos H.; Burns, Mark A.
CS Dept. of Chemical Engineering, The University of Michigan, Ann Arbor, MI, 48109-2136, USA
SO Proc. - Electrochem. Soc. (1998), 98-14(Microstructures and Microfabricated Systems IV), 43-53
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB A useful integration scheme for chem. anal. systems involves **microfabricating** the components on a single substrate. We have used **microfabrication** techniques to construct an integrated biochem. anal. device that can analyze nanoliter-sized DNA samples. The device components include: a liq. injection system that relies on hydrophobic/hydrophilic boundaries to control liq. flow and inject nanoliter-sized drops; movement by a variety of techniques, including a mechanism based on induced temp. differences termed thermocapillary pumping; and a chem. detection system using diodes to detect the presence of either radioactively or fluorescently labeled mols. Each of these individual components can be combined with the others to form increasingly

complex integrated systems. The advantage of this approach is the potential for low-cost prodn. of complex chem. sensors. Our current application of this technol. is to the genotyping and sequencing of DNA.

RE.CNT 6

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(1) Burns, M; Proc Natl Acad Sci USA 1996, V93, P5556 CAPLUS
(2) Handique, K; Proceedings of SPIE Conference on Micromachined Devices and Components 1997, V3224, P185 CAPLUS
(3) Man, P; International Conference on Micro Electromechanical Systems (MEMS 98) 1998, P45 CAPLUS
(4) Shoji, S; Technical Digest of the 9th Sensor Symposium 1990, P27
(6) Webster, J; International Conference on Solid State Sensors and Actuators (Transducers ` 97) 1997, P503 CAPLUS

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L11 ANSWER 15 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 1998:30836 CAPLUS
DN 128:122041
TI **Microfabrication**, microstructures and microsystems
AU Qin, Dong; Xia, Younan; Rogers, John A.; Jackman, Rebecca J.; Zhao, Xiao-Mei; Whitesides, George M.
CS Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, 02138, USA
SO Top. Curr. Chem. (1998), 194(Microsystem Technology in Chemistry and Life Science), 1-20
CODEN: TPCCAQ; ISSN: 0340-1022
PB Springer-Verlag
DT Journal; General Review
LA English
AB This review, with 146 refs., gives a brief introduction to materials and techniques used for **microfabrication**. Rigid materials have typically been used to fabricate microstructures and systems. Elastomeric materials are becoming attractive, and may have advantages for certain types of applications. Photolithog. is the most commonly used technique for the fabrication of structures for microelectronic circuits, microelectromech. systems, microanal. devices and micro-optics. Soft lithog. represents a set of non-photolithog. techniques: it forms micropatterns of **self-assembled monolayers** (SAMs) by contact printing and generates microstructures of polymers by contact molding. The aim of this paper is to illustrate how non-traditional materials and methods for fabrication can yield simple, cost-effective routes to microsystems, and now they can expand the capabilities of these systems.

L11 ANSWER 17 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 1997:764569 CAPLUS
DN 128:41499
TI **Microfluidic** flow control using selective hydrophobic patterning
AU Handique, K.; Gogoi, B. P.; Burke, D. T.; Mastrangelo, C. H.; Burns, M. A.
CS Department of Chemical Engineering, The University of Michigan, Ann Arbor, MI, 48109-2136, USA
SO Proc. SPIE-Int. Soc. Opt. Eng. (1997), 3224(Micromachined Devices and

Components III), 185-195
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB We have developed a method to pattern **Self Assembled Monolayer** (SAM) films of n-octadecyltrichlorosilane (OTS) on silicon and glass substrates using a simple lift-off procedure. By defining hydrophobic regions at definite locations in **microchannels** and using an external pressure source, we can split off precise nanoliter vol. liq. drops and control the motion of those drops through the **microchannels**. We have also constructed an on-chip pressure source for drop splitting and motion by heating air trapped in a micromachined chamber. Both techniques can produce and move drops on the order of 50 nL.

L11 ANSWER 35 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 1995:925264 CAPLUS
TI **Self-Assembled monolayers** and related systems in nano-and **microfabrication**
AU Whitesides, George
CS Dept. Chemistry, Harvard University, Cambridge, MA, 02138, USA
SO Book of Abstracts, 210th ACS National Meeting, Chicago, IL, August 20-24 (1995), Issue Pt. 2, PHYS-066 Publisher: American Chemical Society, Washington, D. C.
CODEN: 61XGAC
DT Conference; Meeting Abstract
LA English
AB **Self-assembled monolayers** (SAMs; particularly SAMs of alkanethiolates on gold) provide a route into a range of structures with dimensions of 1-20 nm in at least one dimension. This talk will summarize these fabrication techniques, with an emphasis on microcontact printing (.mu.CP) and micromolding in capillaries (MIMIC).

L11 ANSWER 40 OF 45 CAPLUS COPYRIGHT 2000 ACS
AN 1995:538753 CAPLUS
DN 123:66513
TI Patterned **Self-Assembled Monolayers** and **Meso-Scale** Phenomena
AU Kumar, Amit; Abbott, Nicholas L.; Biebuyck, Hans A.; Kim, Enoch; Whitesides, George M.
CS Department of Chemistry, Harvard University, Cambridge, MA, 02138, USA
SO Acc. Chem. Res. (1995), 28(5), 219-26
CODEN: ACHRE4; ISSN: 0001-4842
DT Journal; General Review
LA English
AB A review with 46 refs. on the prepn. and application of **self-assembled monolayers** (SAMs) of org. mols. on metallic substrates for use as patterns. Applications include micro-machining, micro-contact printing, micro-writing, micro-electrodes, patterned substrates in spectroscopy (optical gratings), microlenses, and cell biol. (surface immobilization).